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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/614,188

07/08/2003

Richard L. Sutherland

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06/20/2006

KILPATRICK STOCKTON LLP  
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WASHINGTON, DC 20005

EXAMINER

ROSENBERGER, RICHARD A

ART UNIT

PAPER NUMBER

2877

DATE MAILED: 06/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/614,188

Applicant(s)

SUTHERLAND ET AL.

Examiner

Richard A. Rosenberger

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

1. As noted in the previous office action, claims 35-38 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, and the election was made without traverse. Accordingly, claims 35-38 should be cancelled. It is noted that canceling these claims in no manner prejudices the filing of these claims or the subject matter therein in a divisional application.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 6-14, 17-28 and 30-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murphy et al (US 5,864,641) in view of Batchelder et al (US 4,844,613), Ridgeway et al (US 5,377,008) and Lading et al (US 6,493,090).

Murphy et al shows a sensor for determining the presence of a target agent comprising "detection module" which comprises a grating on a waveguide with a active material that reacts with the agent of interest and causes a change in an optical parameter of the material which can be measured by changes in the manner in which light interacts with the grating. A fluid sample which may contain the agent of interest is passed to the active material where "a chemical bond is formed between the target site and a specific molecule" (column 5, lines 62-65); thus the target molecule (the "agent")

is “trapped” by the chemical bond in the material, and thus the active material constitutes a filter that filters the sample in the sense the term “filter” is used in the claim.

Murphy does not appear to teach using a reference against which to compare the measurement from the active cite. This use of a reference is well-known in the art; see, for example, Batchelder; see column 3, lines 14-24, which describes the known use of a reference measuring path in addition to the sample measuring path, in which the reference path does not have the detection molecules. It would have been obvious to use such a reference site for the reasons in the art such references are commonly used, such as the increased accuracy due to the cancellation of effects that are common to the two paths, leaving the measured result “due solely to specific binding effects”, as mentioned by Batchelder in column 3, lines 20 and 21.

As also taught by Ridgeway et al, it is known in the art to form a reference site by providing a material like that of the active measurement area but without the active material; see Ridgeway et al, column 8, lines 16-23, which discloses effectively removing the active material from the reference area. It would have been obvious to form the active area in this manner for the reasons of the Ridgeway reference as set forth in column 8, lines 23-27 of canceling all nonspecific effects.

The use of any type of known gratings, including Bragg gratings, which will be sensitive to changes in the optical characteristics of the active material would have been obvious.

Providing any suitable arrangement for providing the sample fluid to the active material, including micro-fluidic systems, would have been obvious; micro-fluidic systems would have been obvious because this would minimize the amount of the sample fluid needed for the detection; see; for a single example, Lading et al, column 8, lines 23-33, which notes that as of the filing of the application that became that patent the “fluid handling in such devices is usually based on microfluidics”.

In the system of Murphy the optical characteristic may be index of refraction; see column 7, lines 5-7.

Making the waveguides of any suitable material would have been obvious.

4. Claims 4-5, 15-16 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murphy et al (US 5,864,641) in view Murphy et al (US 5,864,641) in view of Batchelder et al (US 4,844,613), Ridgeway et al (US 5,377,008) and Lading et al (US 6,493,090) as applied to the claims above, and further in view of the acknowledged prior art on page 23, paragraph [0083].

The instant specification mentions that the formation of Bragg gratings by holographically polymerizing a polymer dispersed liquid crystal material in known, and supports the disclosure of this claimed manner or making the grating by reference to issued U.S. patents. It would have been obvious to form the grating in this known manner because this is a known manner of forming the gratings.

The remarks filed 28 March 2006 have been considered, but have not been found to be persuasive.

The remarks argue that the active material of the Murphy patent is not a “filter” as in the claim (remarks, pages 3-4). However, this argument does not appear to be in agreement with the instant disclosure relating what is being referred to as the “filter” in the instant specification. In the specification, the “filter” are described on the bottom of page 14, as operating by the effect of “detector molecules are bound into the pores and/or the surface ...” and “target agents are selectively bound to a corresponding detector molecule ...”. This is the same mode of operation described in the Murphy et al reference, column 5, lines 59-76, in which “a chemical bond is formed between the target site and the specific molecule ...”. While it is certainly true that the Murphy reference does not use the word “filter” to describe the reactive coating, the actual elements and operation of the elements appear to be the same in Murphy and in the instant claims.

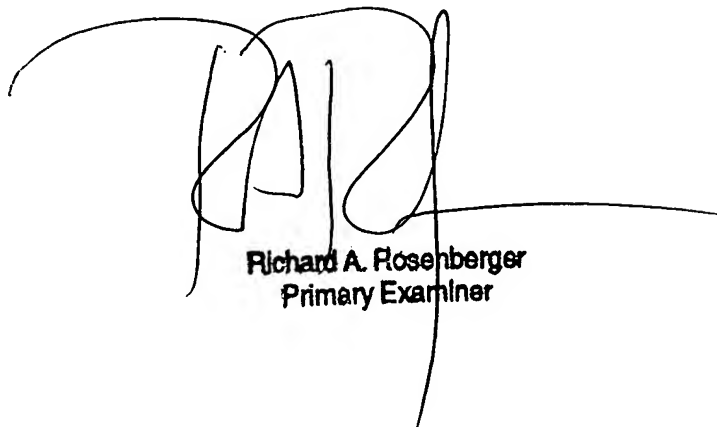
The remarks argue that the previously cited Brandenburg reference does not show the multiple measuring devices of claim 10 (remarks, lines 5). See the discussion of the Batchelder et al reference above, which teaches that it is known in the art to provide separate measurement of a sample and reference areas. Note also Naya (US 5,917,607), in particular figure 4 and the paragraph bridging columns 6 and 7, which discloses the use of separate detecting means to measure difference measuring areas.

The remarks argue that the previously cited art dose not teach the claimed use of a “micro-fluidic” system (remarks, page 6). See the newly cited reference to Lading et al, which discusses the known use of microfluidics in such measurement arrangements.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard A Rosenberger whose telephone number is (571) 272-2428. The examiner can normally be reached on Monday through Friday during the hours of 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

R. A. Rosenberger  
9 June 2006



Richard A. Rosenberger  
Primary Examiner